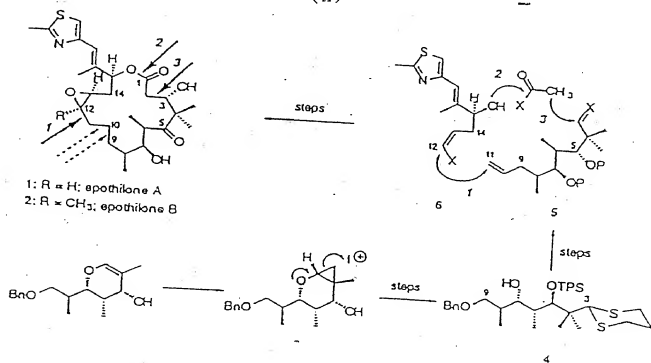


(A)



(B)

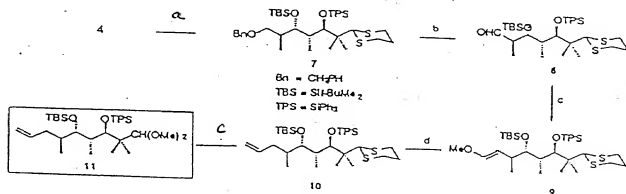
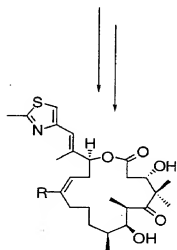
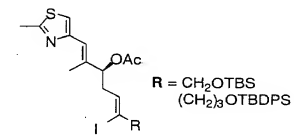
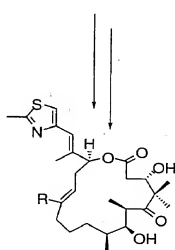
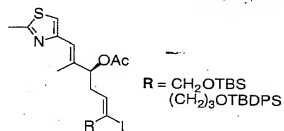
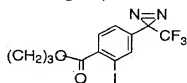
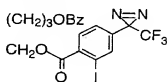


Figure 1



$R = \text{CH}_2\text{OH}$

$(\text{CH}_2)_3\text{OH}$



$R = \text{CH}_2\text{OH}$
 $(\text{CH}_2)_3\text{OH}$

Figure 2

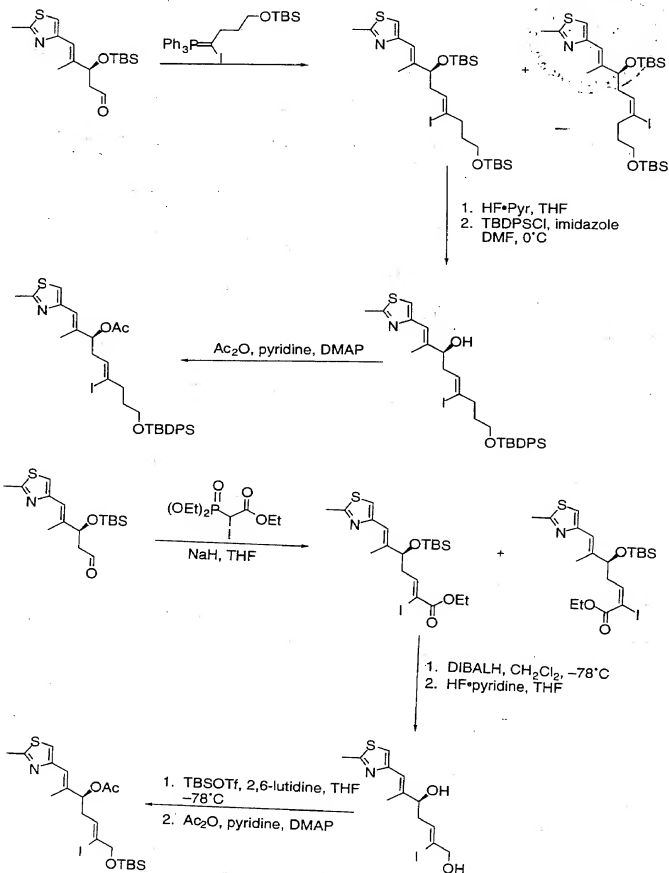


Figure 3(A)

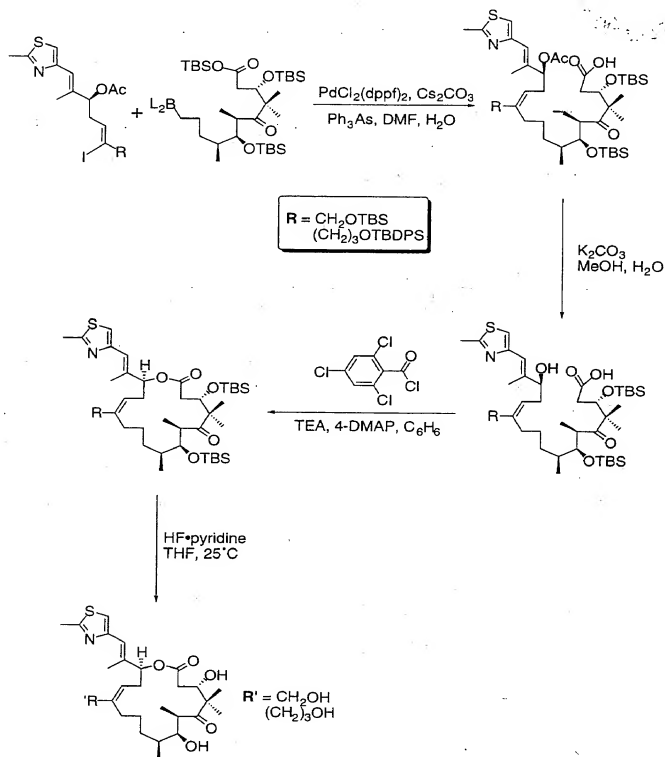


Fig. 3(B)

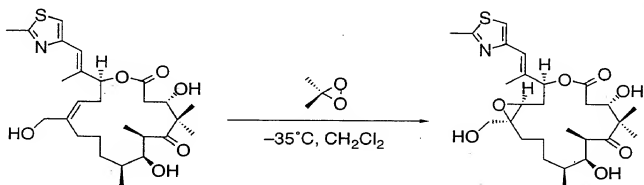
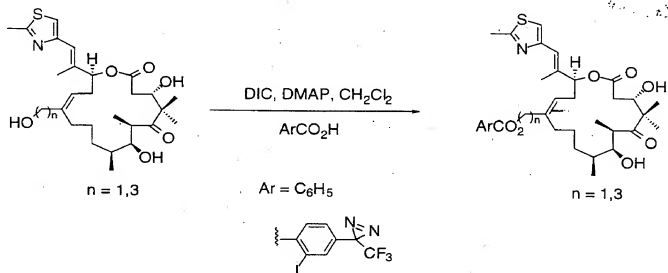


Fig. 3(C)

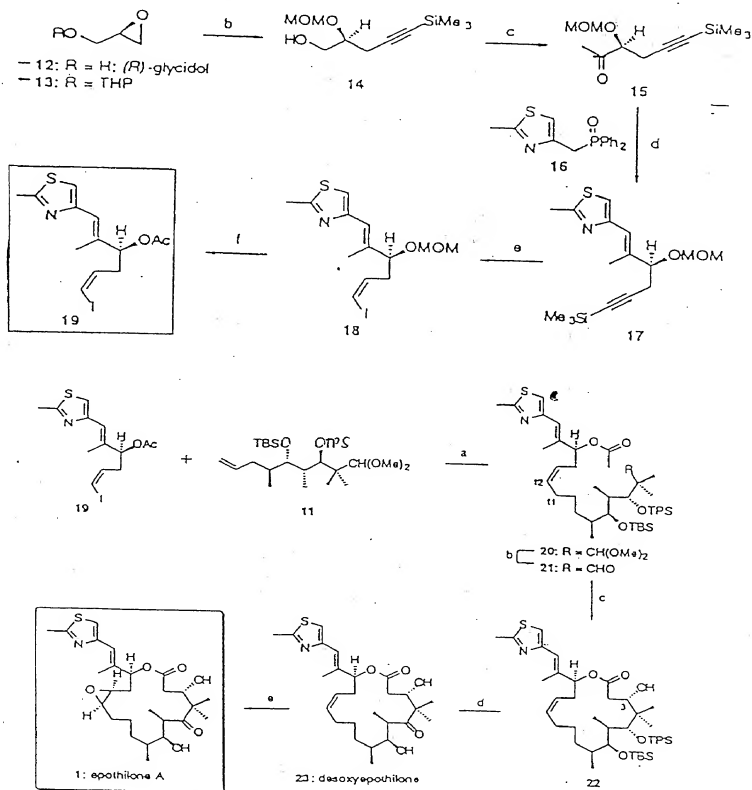
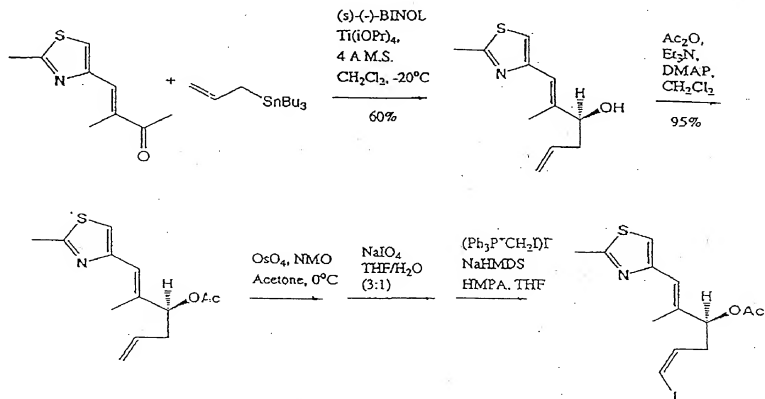


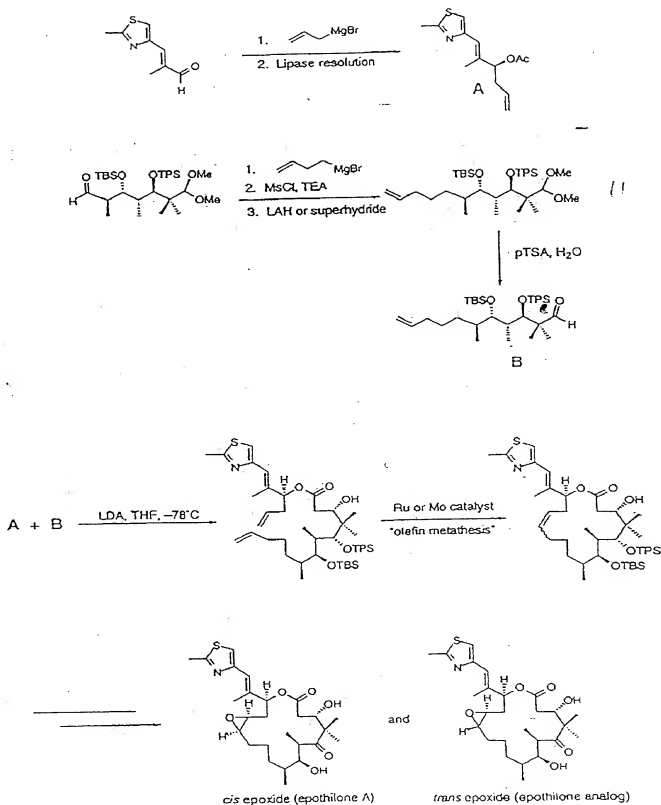
Figure 4



50% for three steps

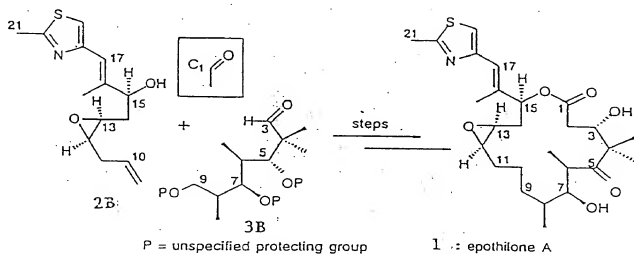
Figure 5

3470

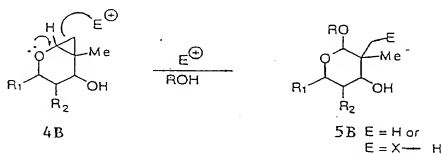


* 17 steps from known starting materials vs. 27 steps for aldol macrocyclization

Figure 6

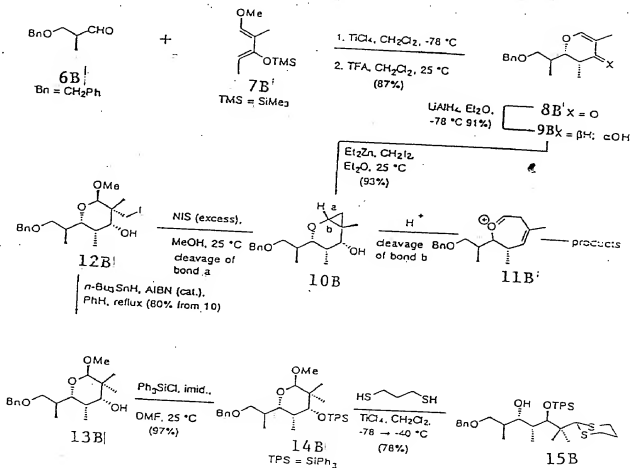


Convergent strategy for a total synthesis of epothilone A (1).



The glycol-cyclopropane solvolysis strategy for the introduction of geminal methyl groups.

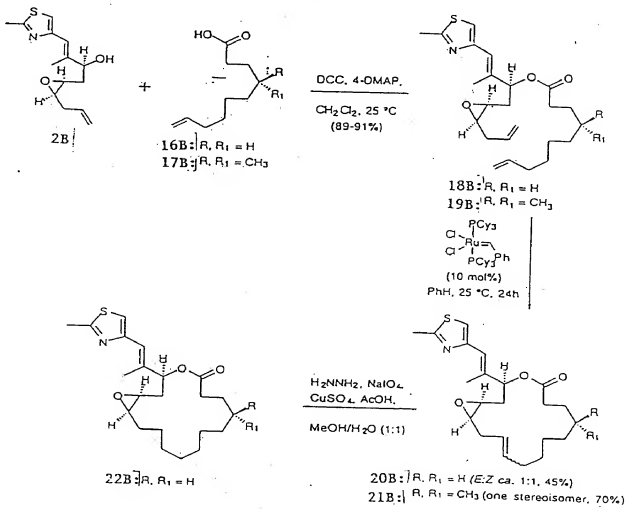
Figure 7



Enantioselective synthesis of compound 15B

Figure 8

07/02/01
10:20:07



Construction of epothilone model systems 20^a, 21^a, and 22^a by ring-closing olefin metathesis

Figure 9

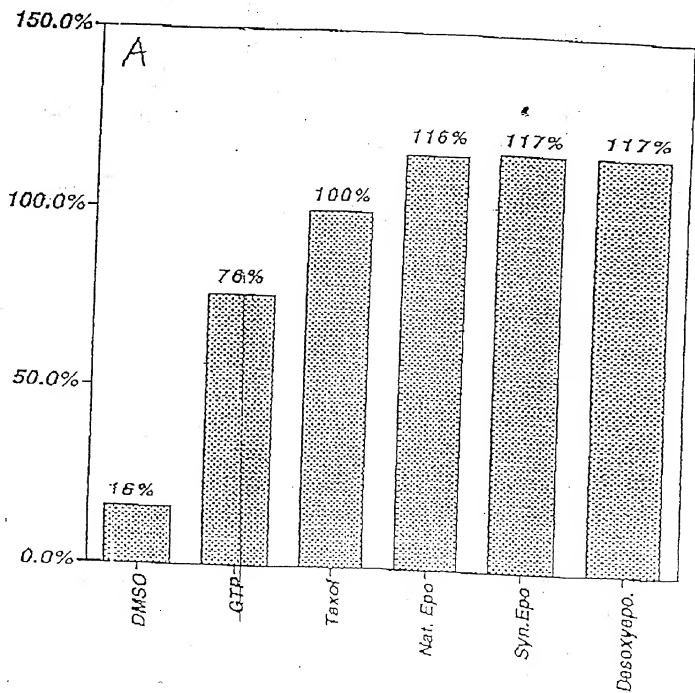


Figure 10

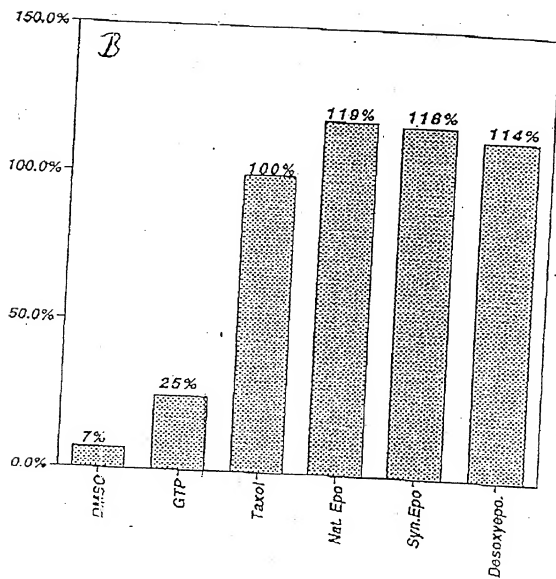


Figure 11

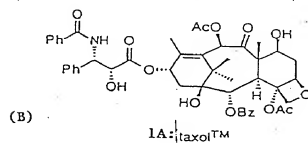
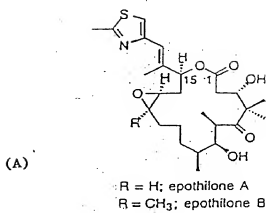


Figure 12

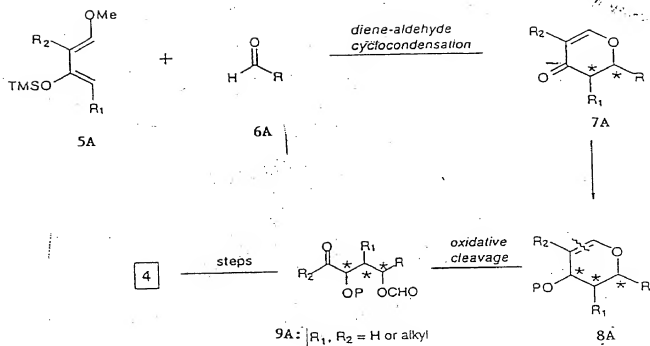


Figure 13

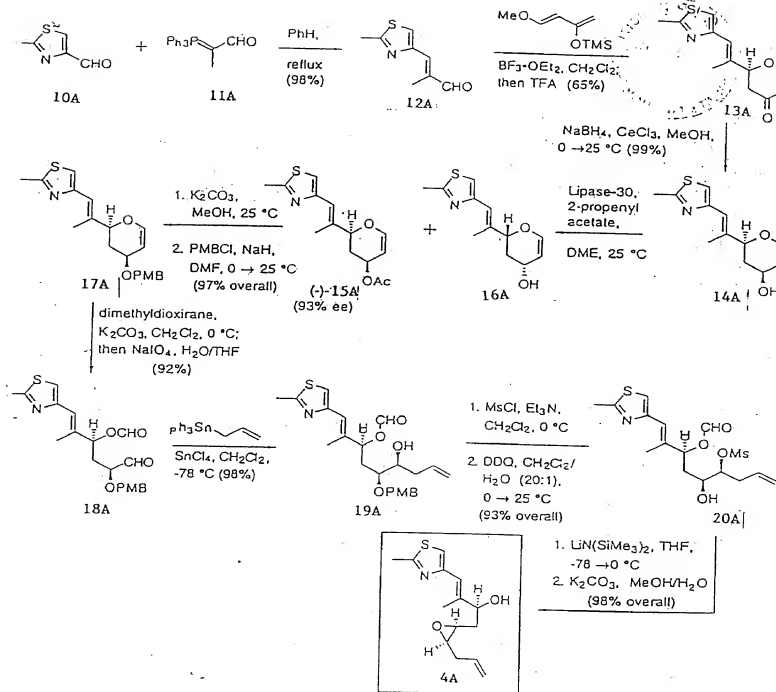


Figure 14

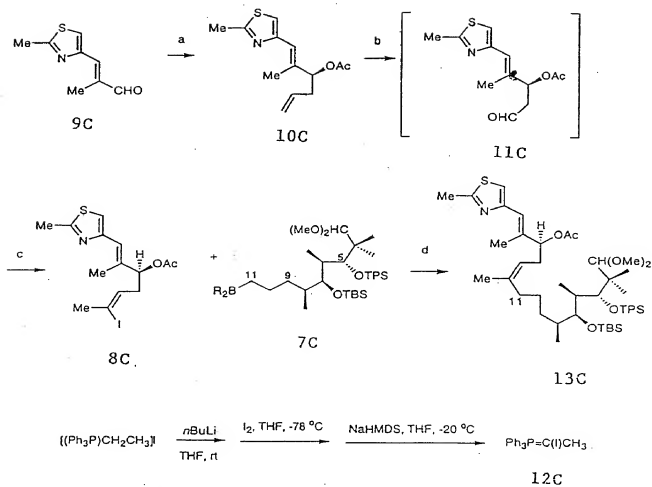


Figure 16

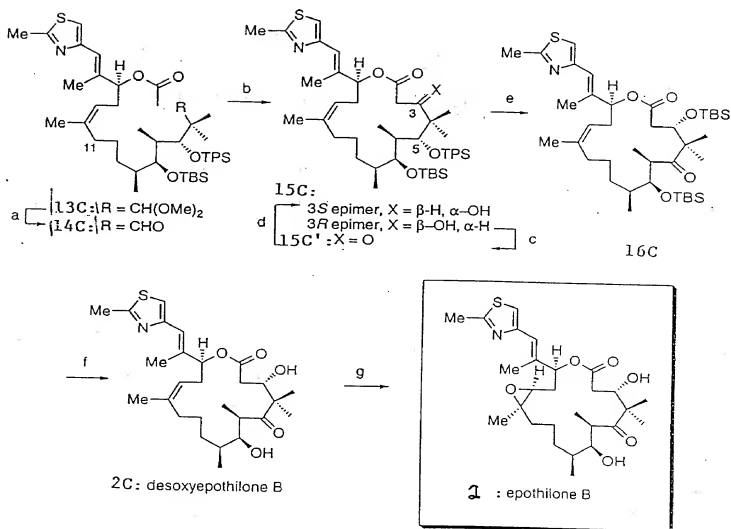


Figure 17

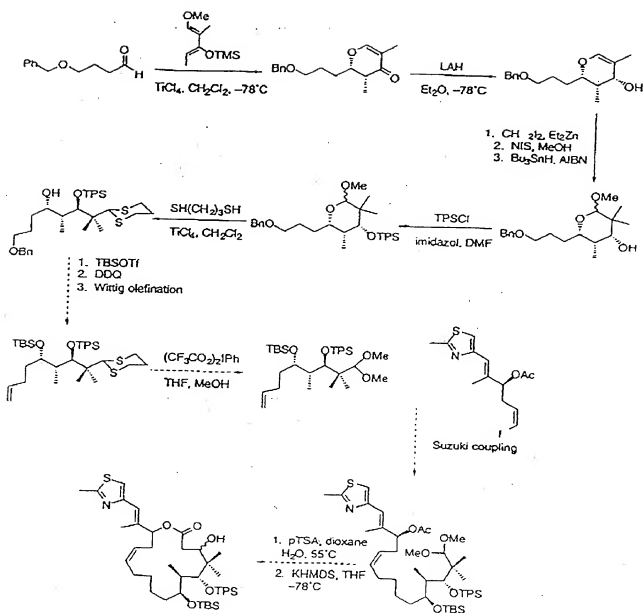


Figure 18

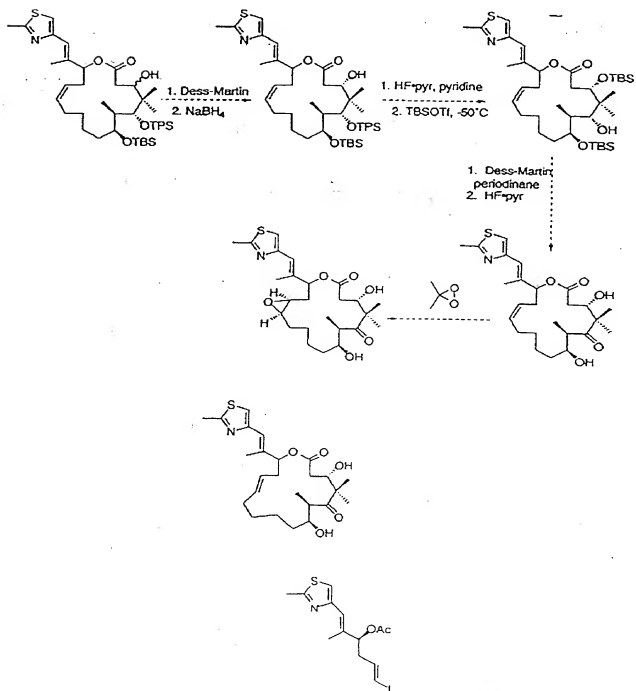


Figure 19

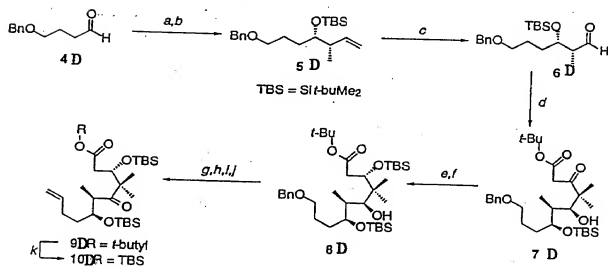
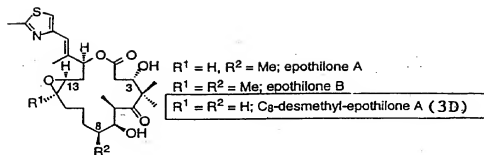


FIGURE 20

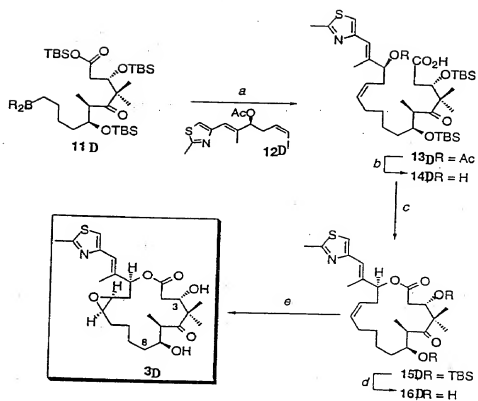


FIGURE 21

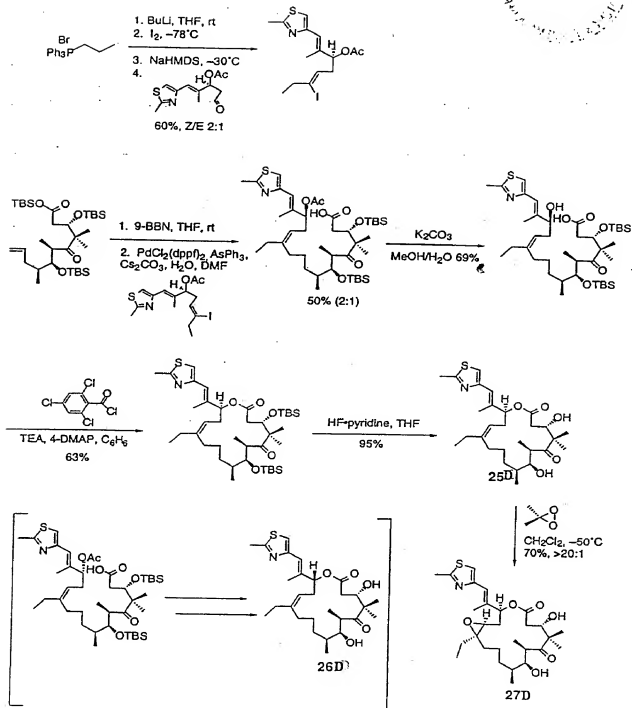


FIGURE 22

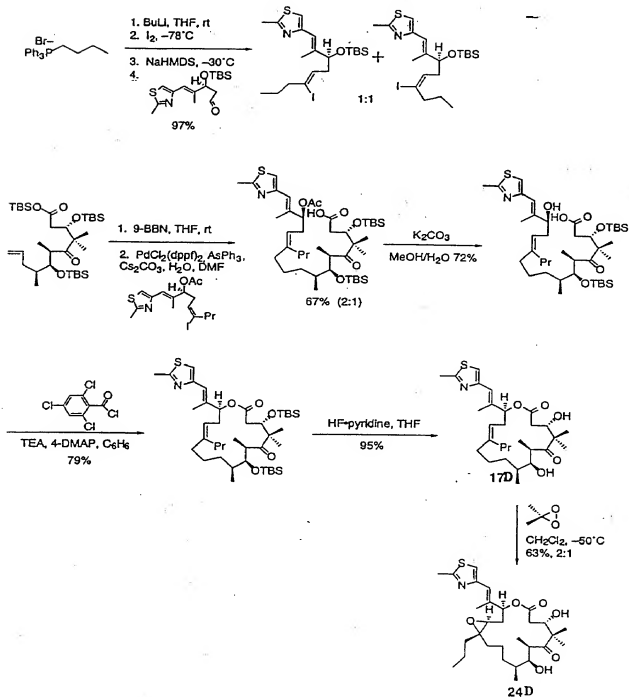


FIGURE 23

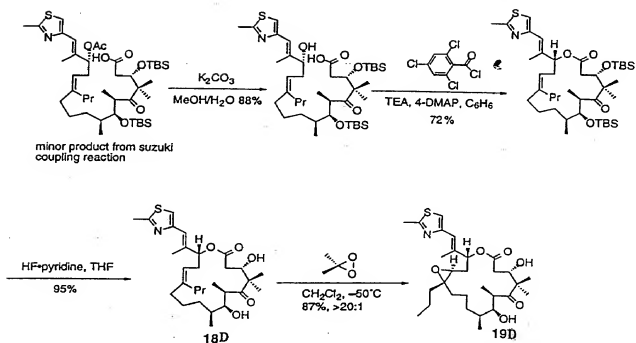


FIGURE 24

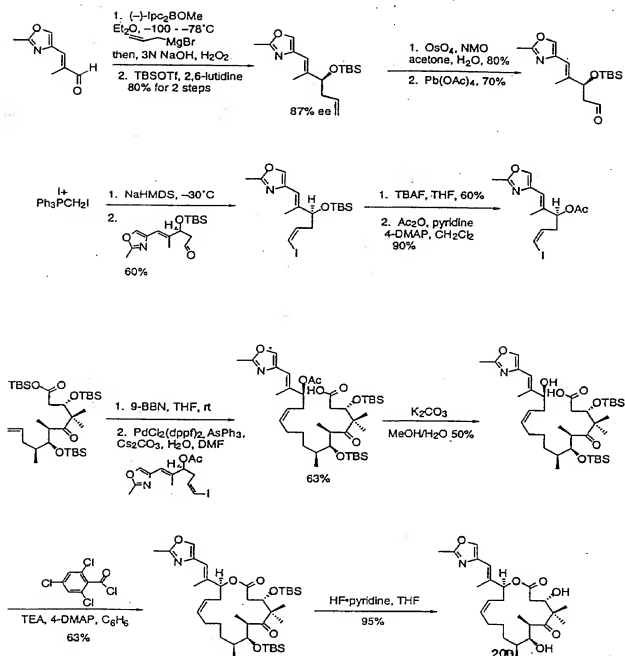


FIGURE 25

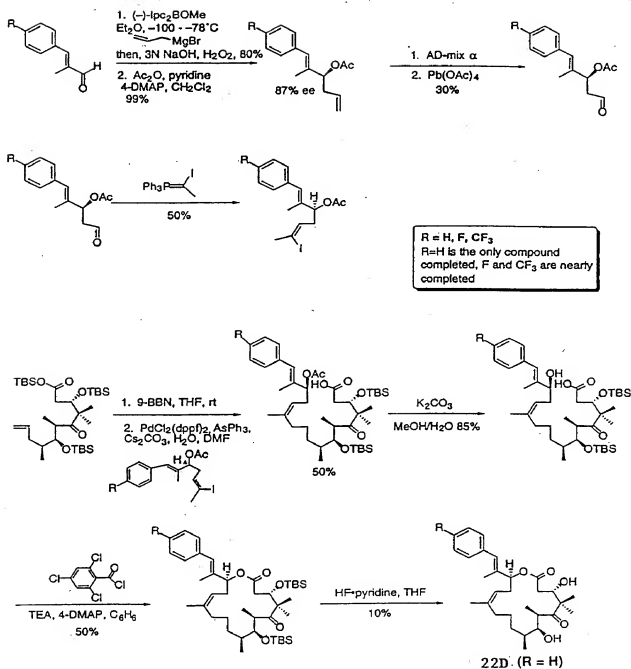


FIGURE 26

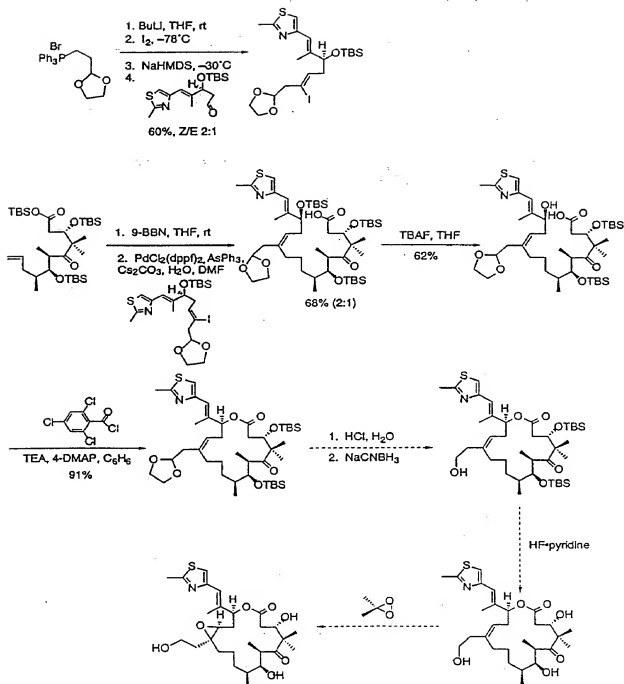


FIGURE 27

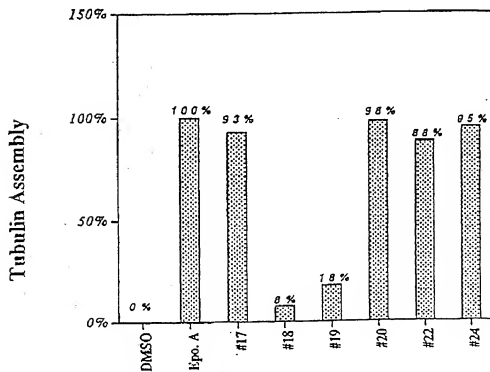
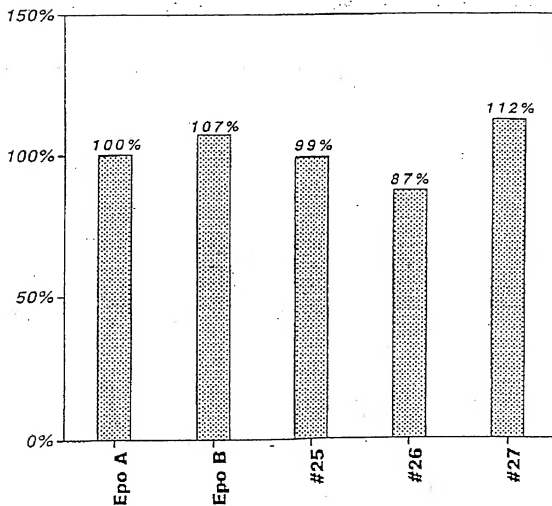


FIGURE 28

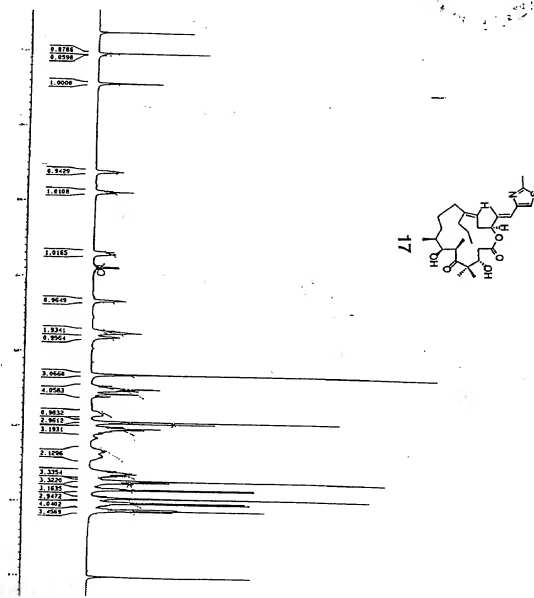


FIGURE 29

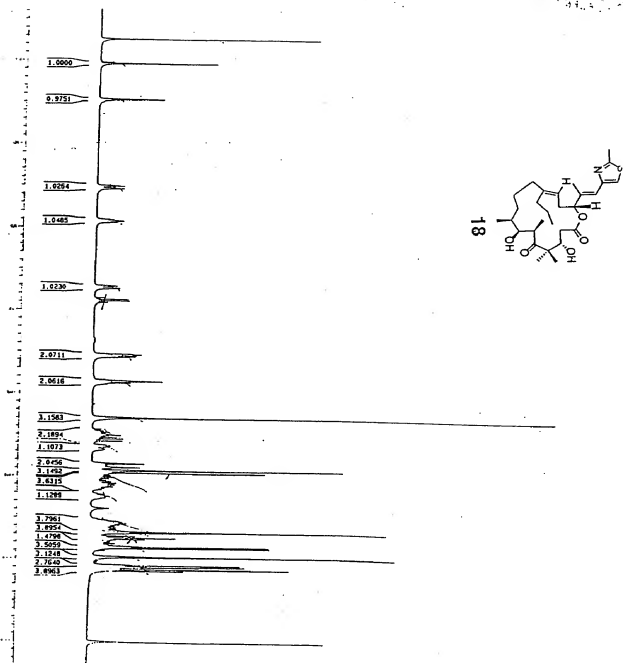
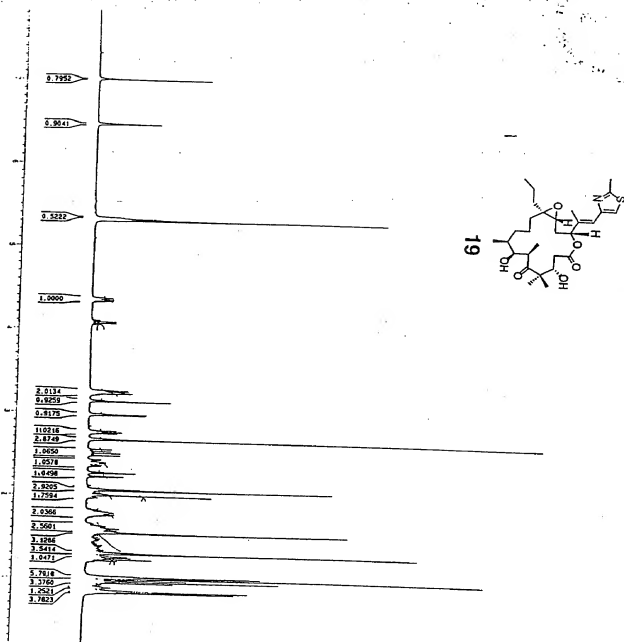


FIGURE 30



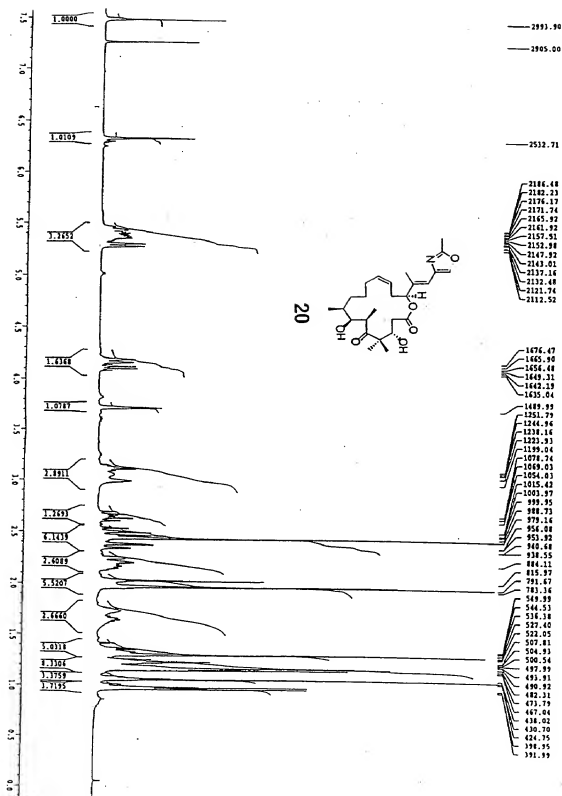


FIGURE 32

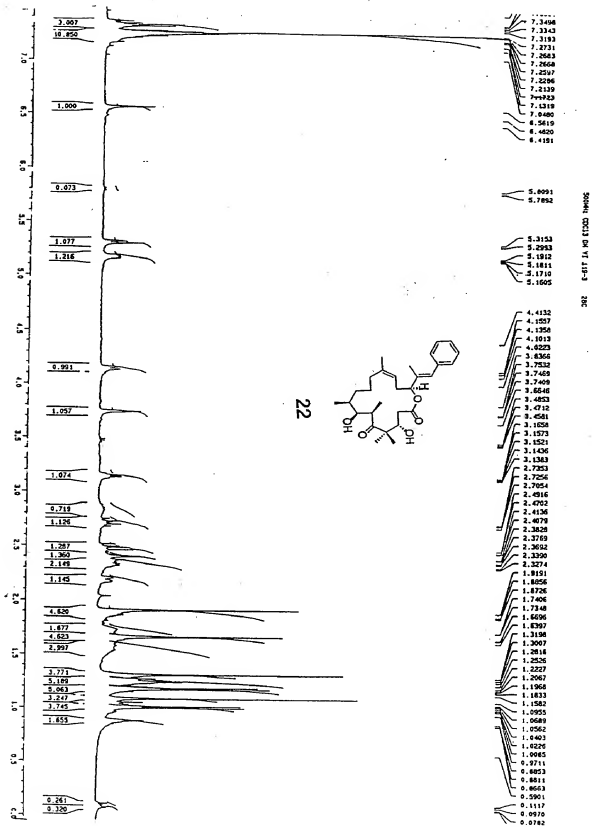


FIGURE 33

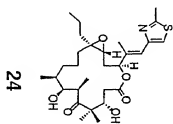
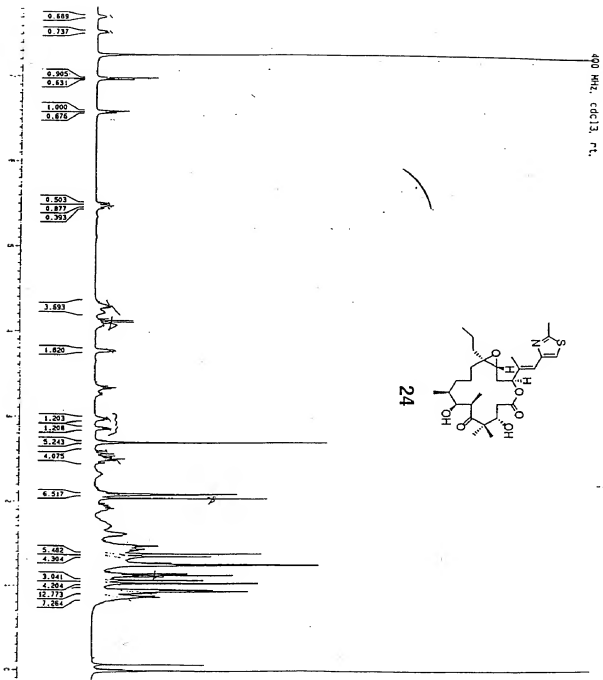


FIGURE 34





OS5-11-130-11

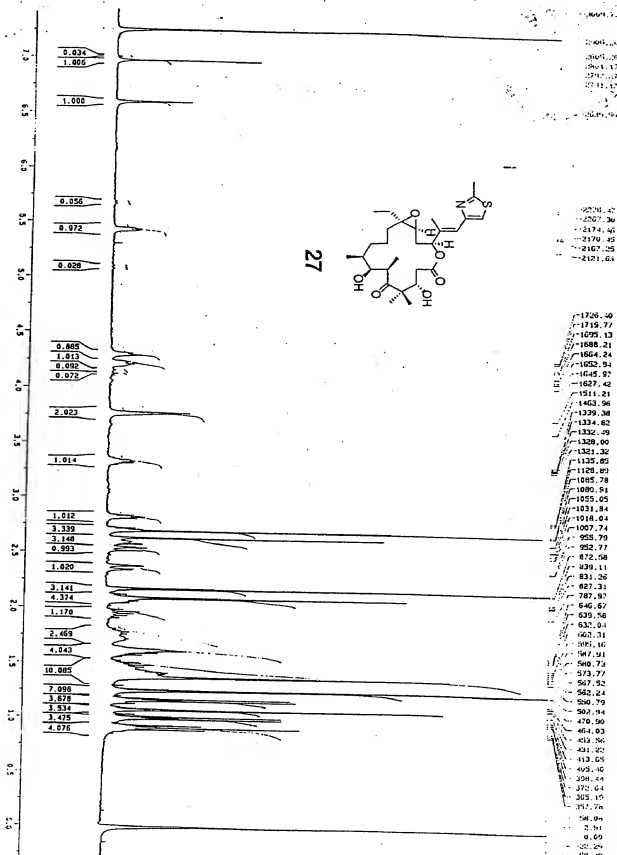
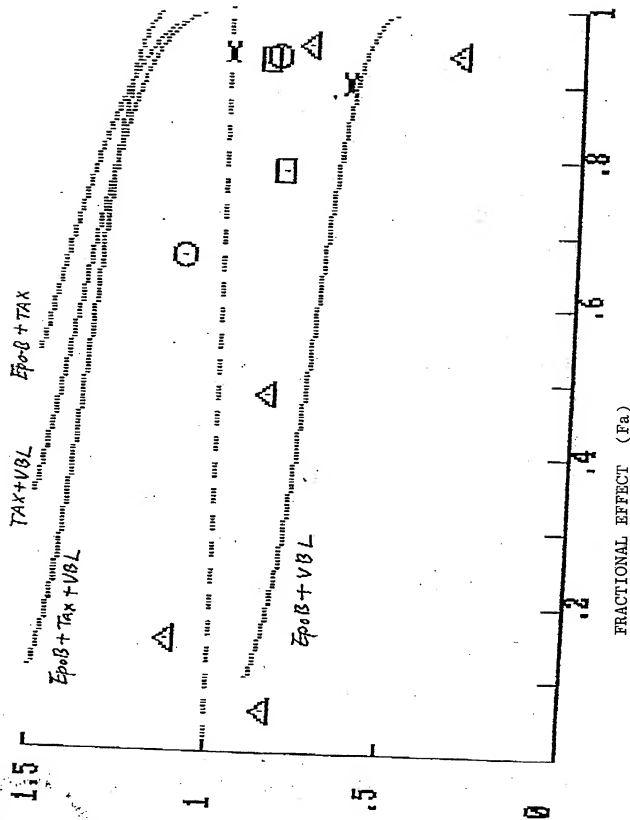
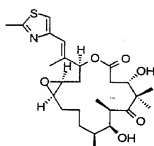


FIGURE 37

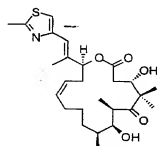
Figure 38



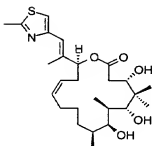
CI



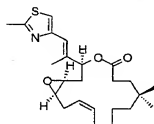
epothilone A
(0.0027)
[0.020]



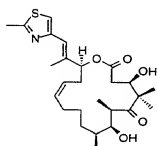
desoxyepothilone A
1
(0.022)
[0.012]



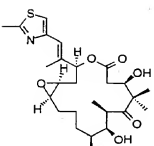
2
(14.23)
[6.28]



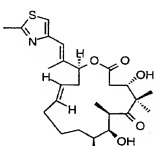
3
(271.1)
[22.4]



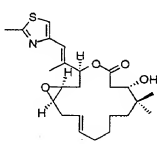
4
(2.12)
[43.0]



5
(>20)
[35.2]

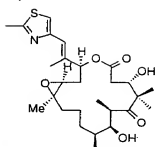


6
(0.052)
[0.035]

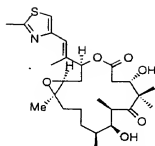


7
(7.36)
[9.82]

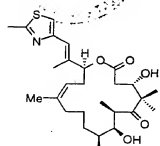
Fig. 39



synthetic epothilone B

8(0.00044)
[0.0026]

natural epothilone B

9(0.00017)
[0.0012]

desoxyepothilone B

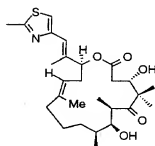
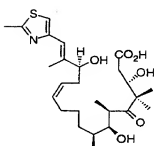
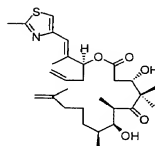
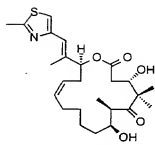
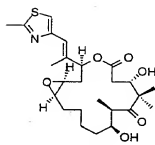
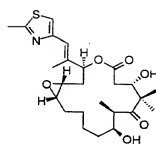
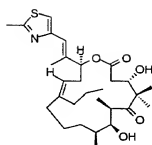
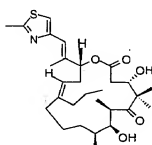
10(0.0095)
[0.017]**11**(0.090)
[0.262]**12**(0.79)
[>5]**13**(11.53)
[5.63]**14**(5.42)
[5.75]**15**(0.96)
[5.95]**16**(7.47)
[16.48]

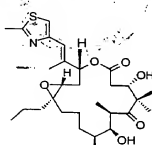
Fig. 40



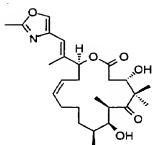
17
(0.090)
[0.254]



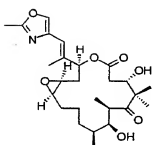
18
(1158)
[>720]



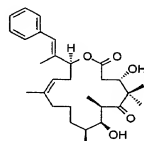
19
(0.96)
[>1.0]



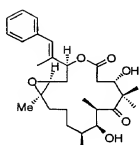
20
(0.030)
[0.049]



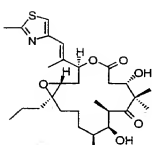
21



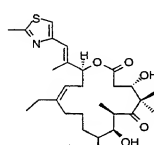
22
(0.098)
[0.146]



23

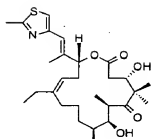


24
(0.0043)
[0.0321]

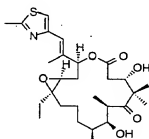


25
(0.021)
[0.0771]

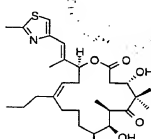
Fig. 41



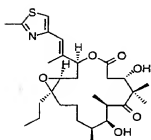
26
(0.055)
[0.197]



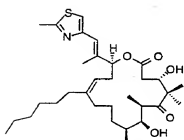
27
(0.0010)
[0.0072]



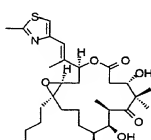
28
(0.039)
[0.067]



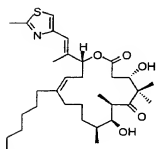
29
(0.0038)
[0.0064]



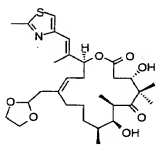
30
(0.044)
[0.108]



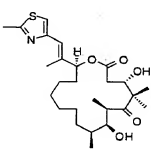
31
(0.027)
[0.049]



32
(0.063)
[0.380]



33
(0.0031)
[0.0093]



34
(0.143)
[0.276]

Fig. 42(A)

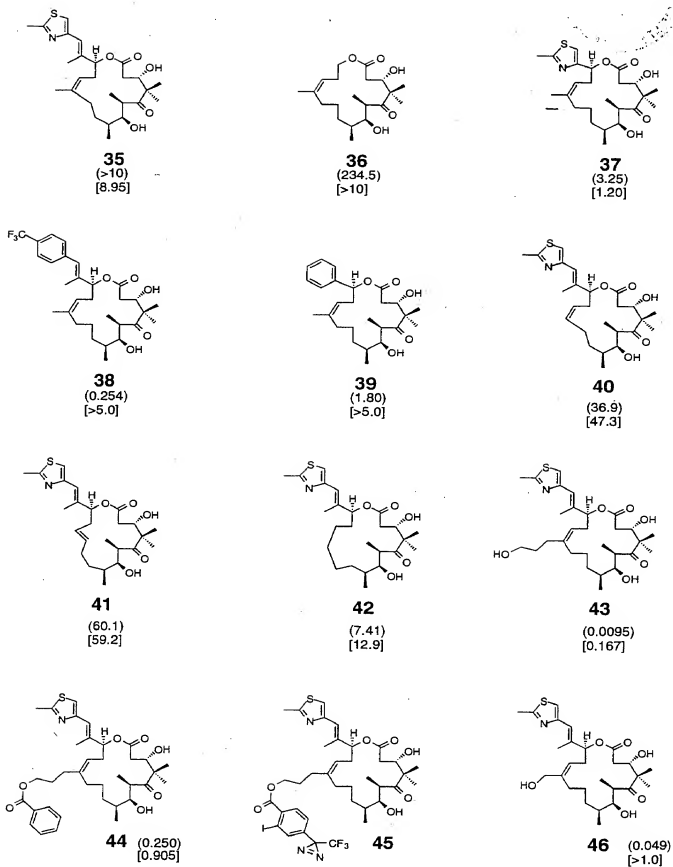


Fig. 42(B)

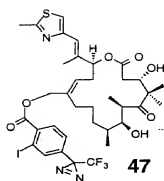
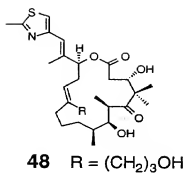
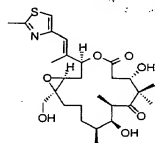
**47****48** $\text{R} = (\text{CH}_2)_3\text{OH}$ **49**

Fig. 42(C)

Fig. 43(A)

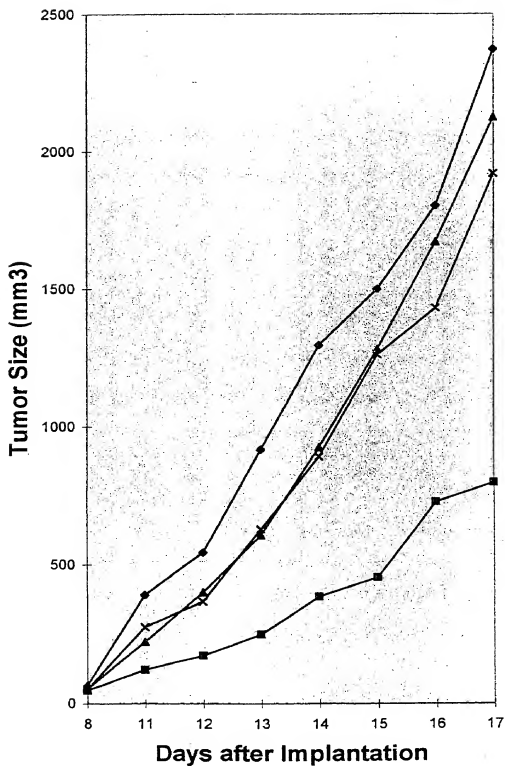
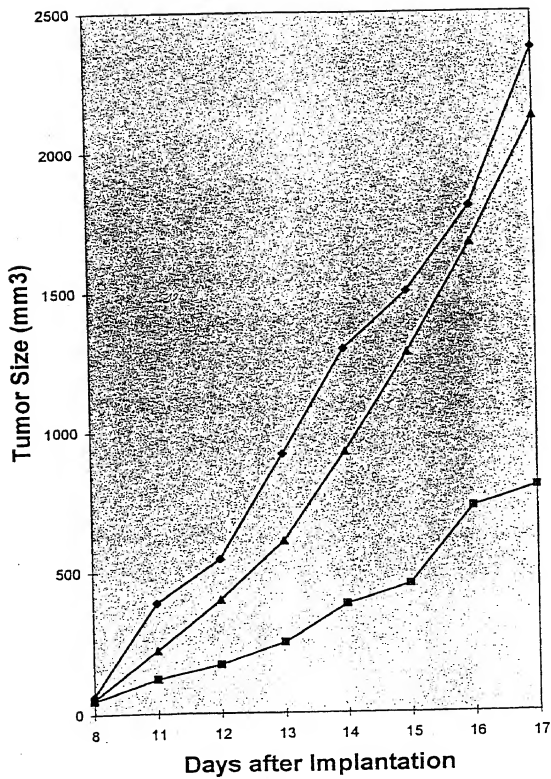
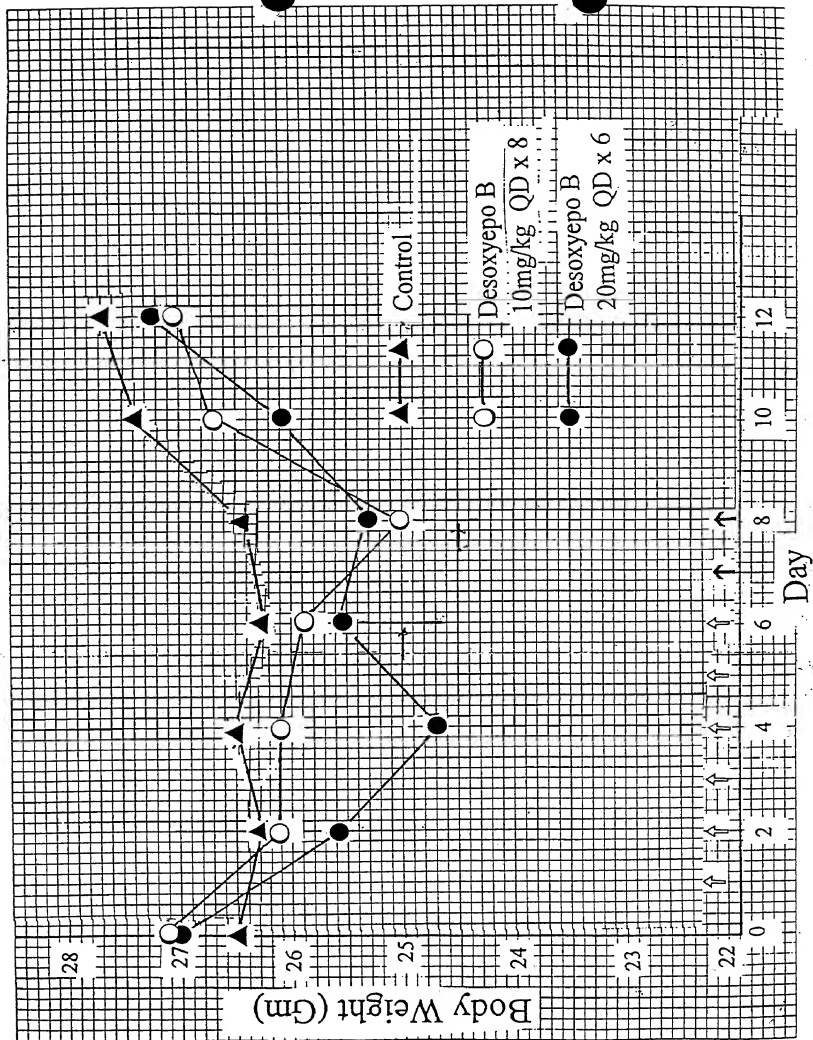


Fig. 43(B)





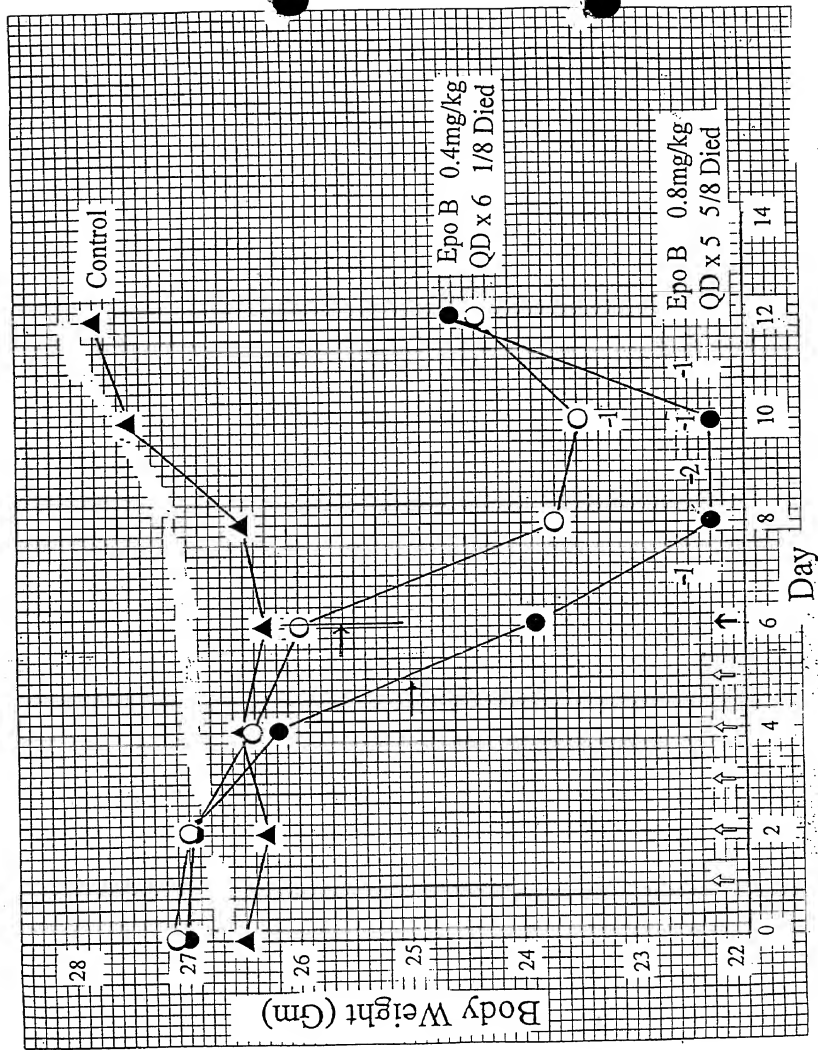


Fig. 44(B)

Fig. 45(A)

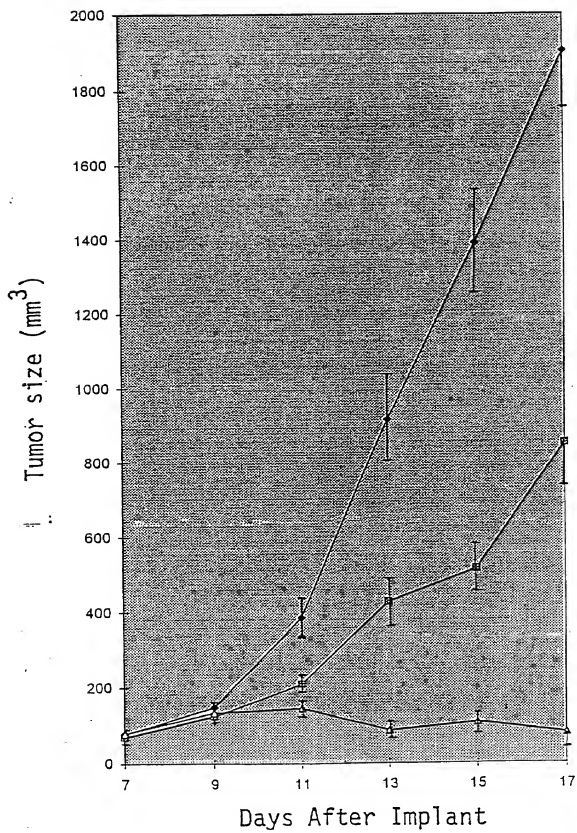
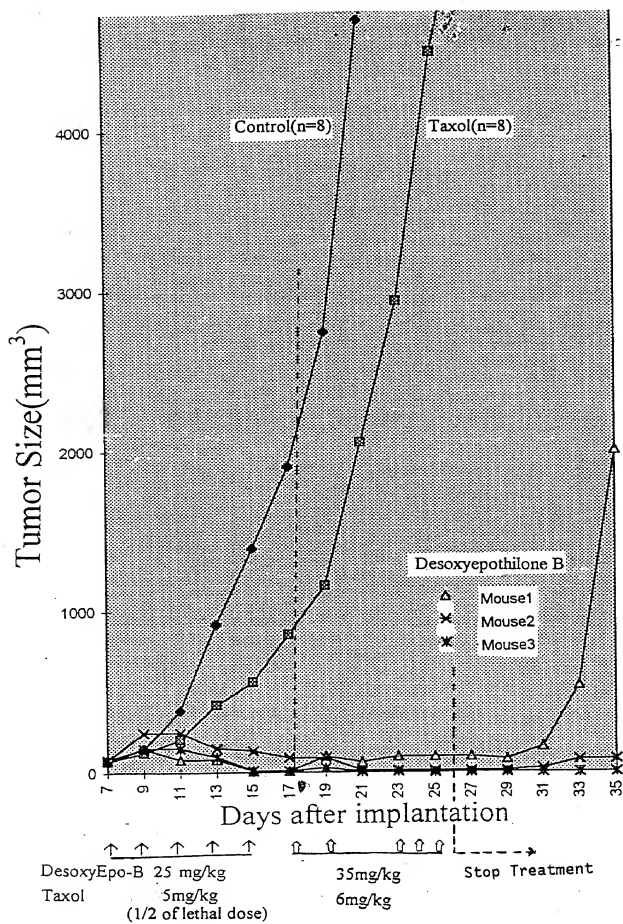


Fig. 45(B)



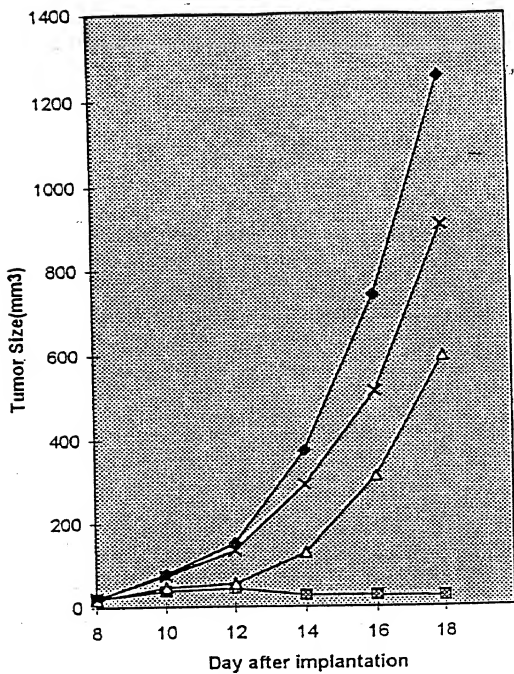
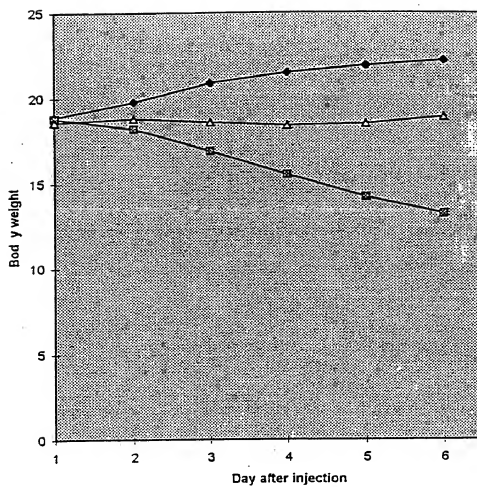
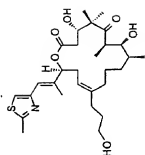


Fig. 46

Fig. 47





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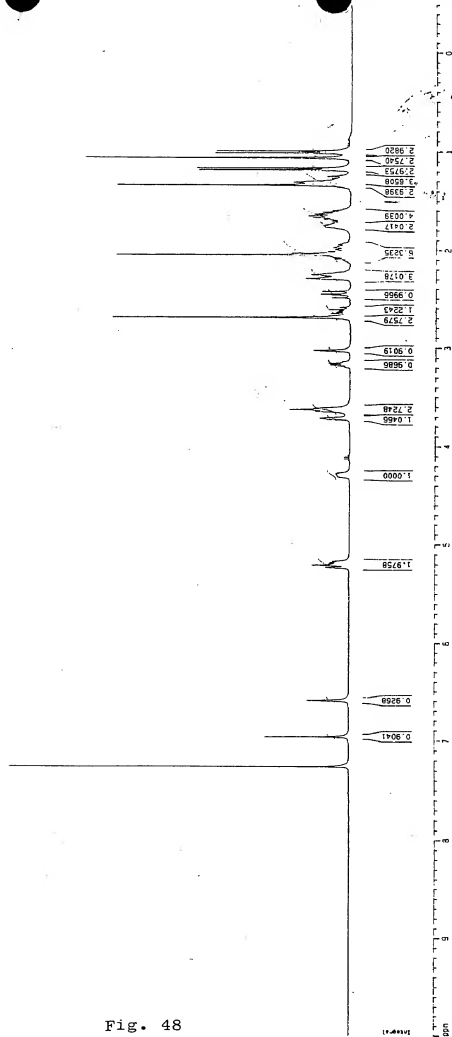
400 MHz, CDCl_3 , rt.

Fig. 48

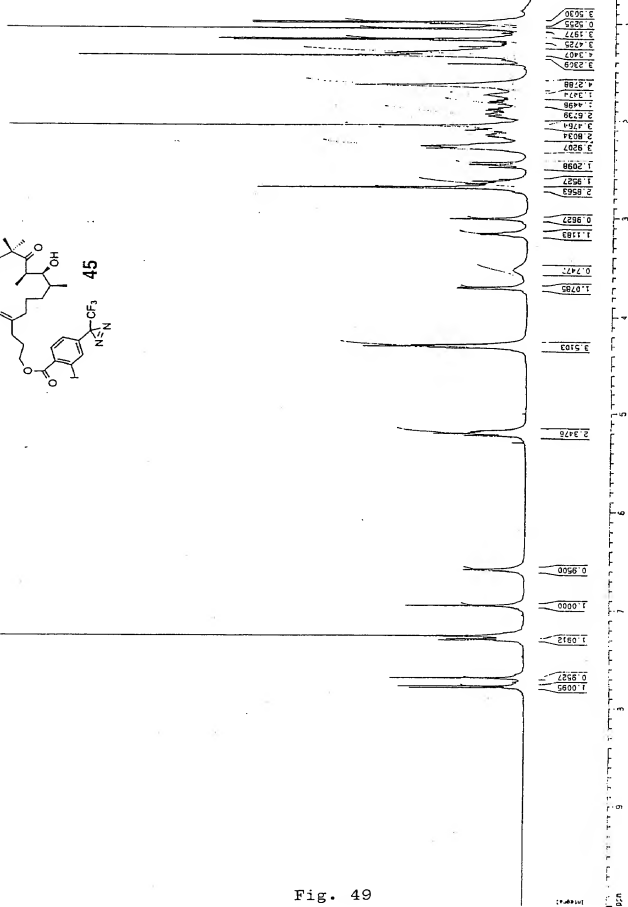
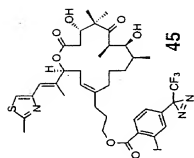


Fig. 49

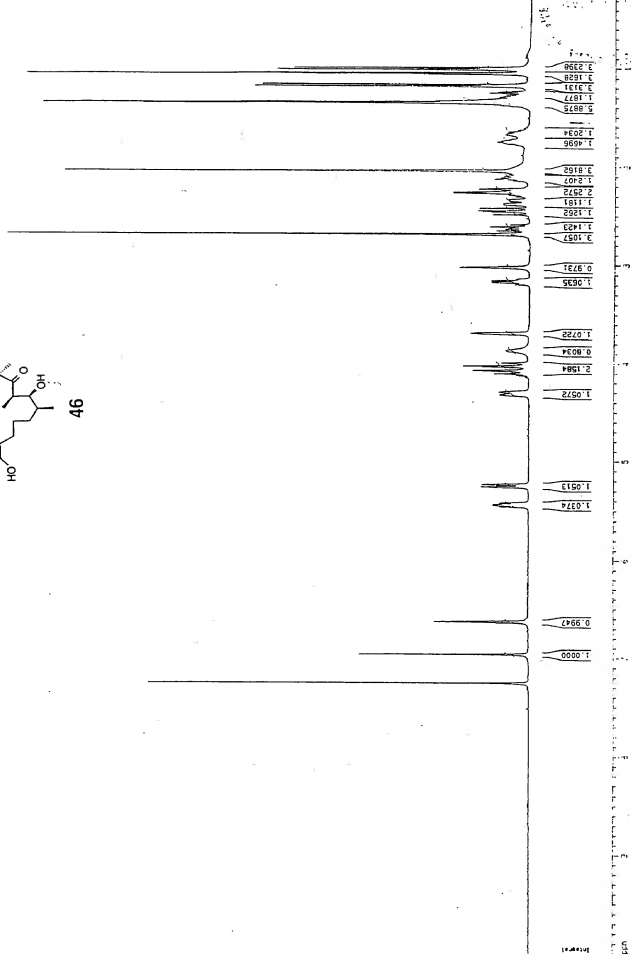
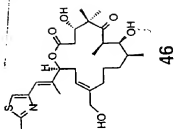
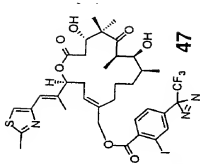
400 MHz, $cdCl_3$, rt.

Fig. 50

500 MHz, CDCl₃, rt, crude alcohol mother

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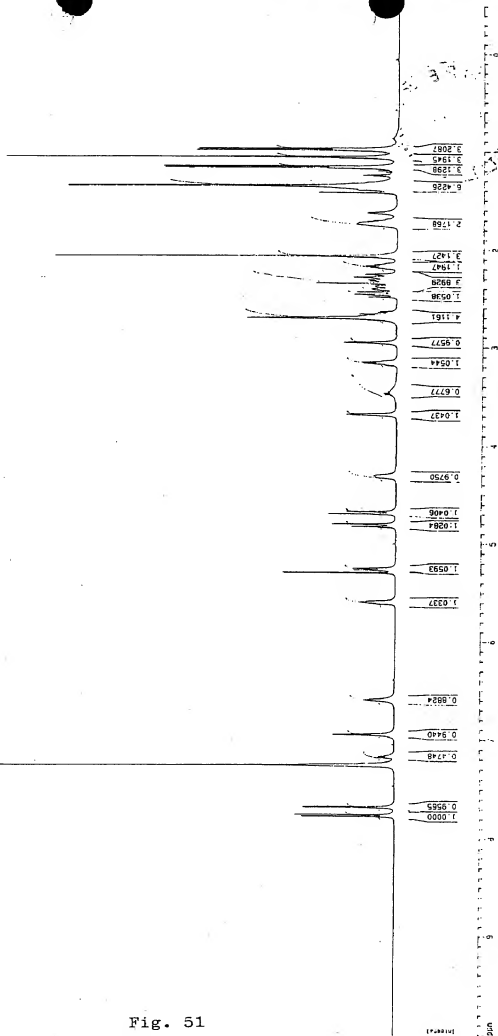
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Fig. 51



Fig. 52